

LOW-JITTER CHARGE-PUMP PHASE-LOCKED LOOP

Abstract

5 A phase-locked loop includes a voltage-controlled oscillator and a
charge-pump loop filter. The voltage-controlled oscillator includes a varactor
having a first set of capacitor cells configured to adjust a capacitance based on a
first control voltage, and a second set of capacitor cells configured to adjust a
capacitance based on a second control voltage. The charge-pump loop filter
10 receives a first and a second update signal, each having at least one state based
on a phase difference between a first clock and a second clock, and comprises a
first component and a second component. The first component is configured to
adjust, during an update period, a voltage across an impedance from a reference
level based on the states of the first and second update signals and to return the
15 voltage across the impedance to the reference level prior to an end of the update
period, wherein the voltage across the impedance comprises the first control
voltage. The second component is configured to adjust a voltage across a
capacitor based on the states of the first and second input signals, wherein the
voltage across the capacitor comprises the second control voltage.

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